

REMARKS

Claims 1, 4, 5, 7, 8, 10, 12-14, 16, and 18-24 are pending. Claims 1, 8, 22, and 24 are amended to correct obvious typographical errors and to recite proper Markush language. Claims 8 and 24 are amended to incorporate the elements of Claim 10, which has been canceled. Claim 12 is amended to have proper antecedent basis with Claim 7. Claim 23 is amended to stand as an independent claim by incorporating elements of Claim 7, from which it previously depended. Support for the amendments to Claim 23 is found, for example, at Column 5, lines 13-33.

No new matter is entered by these amendments and the Examiner is respectfully requested to enter them.

A. Objections to 35 U.S.C. § 132

The Examiner objects to the amendment filed March 13, 1999 as allegedly containing new matter. The Examiner contends the replacement of "cellulase" with "cellulose" is not supported by the specification or by reference to U.S. Patent Nos. 5,340,731, 5,202,247, and 6,166,317. Applicants respectfully traverse the rejection.

Applicants respectfully submit that U.S. Patent Nos. 5,340,731, 5,202,247, and 6,166,317 are incorporated by reference because the subject application specifically refers to their patent numbers as providing methods for the preparation and use of cellulose binding domains and further states that all publications mentioned in the specification are incorporated by reference. Column 7, lines 39-46. Thus, the disclosures of these three patents are part of the subject application as if they had been repeated verbatim in the instant specification.

Support for the replacement of "cellulase" for "cellulose" is found for example in U.S. Patent No. 5,340,731 to Kilburn entitled "Method of Preparing a β -1,4 Glycan Matrix Containing a Bound Fusion Protein". For example, the description of Fig. 1 shows a consensus sequence for the cellulose binding domain.

In view of these remarks, Applicants respectfully request the objection under 132 be withdrawn.

B. Supplemental Oath

A supplemental reissue oath/declaration under 37 C.F.R. §1.175(b) was submitted with Applicant's response dated April 7, 2003. Applicants respectfully request the Examiner to provide the statute and regulation under which the addition of new claims necessarily warrants the submission of another supplemental reissue oath/declaration.

C. Double Patenting Rejection

Claims 1, 4, and 5 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 54, and 56-62 of application No. 08/479,623.

Claims 1, 4, and 5 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8, 25, 29-39, 41, 57, 61, 66-69, 71-75, and 77-86 of application No. 08/860,514.

Claims 1, 4, and 5 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7, 14-16, and 29-33 of application No. 08/860499.

Claims 1, 4, and 5 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 5-10, 12-14, 16, 17, and 19-22 of application No. 09/431542.

Applicants defer responding to the double patenting rejection until there is an indication of otherwise allowable subject matter.

D. 35 U.S.C. §112 Rejections

1. Claims 1, 4, 5, 22, 23, and 24 stand rejected under 35 U.S.C. § 112, first paragraph for non-compliance with the enablement requirement. The Examiner contends the specification does not reasonably enable compositions comprising solid

supports or compositions and methods for killing ants. Applicants respectfully traverse the rejection.

35 U.S.C. §112 requires the specification to be enabling only to a person skilled in the art to which it pertains. Furthermore, the specification "need not disclose what is well known to those skilled in the art and preferably omits that which is well known to those skilled and already available to the public." MPEP § 2164.05(a).

Support for coupling the claimed compounds to solid supports is found at Column 4, lines 41-64 which describes linkers such as polysaccharidase binding domains and cellulose binding domains. The preparation of cellulose binding domains is incorporated by reference to U.S. Patent Nos. 5,340,731, 5,202,247, and 6,166,317. Column 4, lines 45-47; Column 7, lines 39-45. Thus, at the time the subject application was filed, those skilled in the art knew methods of linking or coupling compounds to the binding domains of proteins, such as polysaccharidase and cellulose binding protein, which bind to carbohydrates.

Support for compositions and methods of killing ants is found in Claim 6 as filed.

In view of these remarks, Applicants respectfully request the rejection under 112, second paragraph be withdrawn.

2. Claims 19, 20, and 22 stand rejected under 35 U.S.C. § 112, first paragraph for non-compliance with the written description requirement. The Examiner contends there is no support in the specification for identifying an aromatic aldehyde as an antioxidant or for compositions that do not contain an added antioxidant. Applicants respectfully traverse the rejection.

The subject application incorporates by reference, Patent Application Serial No. 08/366,973. Column 1, lines 7-10; Column 7, lines 39-46. Support for the elements cited by the Examiner are found in Patent Application Serial No. 08/366,973, for example, at page 7, line 14 to page 9, line 7.

In view of these remarks, Applicants respectfully request the rejection under 112, first paragraph be withdrawn.

3. Claim 14 stands rejected under 35 U.S.C. § 112, first paragraph for non-compliance with the enablement requirement. The Examiner contends U.S. Patent Nos. 5,340,731, 5,202,247, and 5,166,317 are not incorporated by reference and therefore cannot support Claim 14. Applicants respectfully traverse the rejection.

Applicants respectfully submit that U.S. Patent Nos. 5,340,731, 5,202,247, and 5,166,317 are incorporated by reference because the subject application specifically refers to their patent numbers as providing compositions and methods for the preparation and use of cellulose binding domains and further states that all publications cited in the specification are incorporated by reference. Column 7, lines 39-46.

In view of these remarks, Applicants respectfully request the rejection under 112, first paragraph be withdrawn.

4. Claim 23 stands rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The Examiner contends proper antecedent basis does not exist for the terms ants, mites and fleas. Applicants respectfully traverse the rejection.

Without comment regarding the propriety of the rejection, Applicants amended Claim 23 to stand as an independent claim.

In view of amended Claim 23, Applicants respectfully request the rejection be withdrawn.

E. 35 U.S.C. §102(b) Rejections

1. Hutchings U.S. Patent No. 4,861,514

Claims 8 and 10 stand rejected under 102(b) as being anticipated by Hutchings. The Examiner contends the claimed compositions are anticipated in Hutchings at Column 4, line 66 to Column 5, line 70; Column 5, lines 9-10 and Column 10, line 55 to Column 11, line 25. The Examiner further contends the compositions of Hutchings do not contain an added antioxidant other than cinnamic aldehyde. Applicant's respectfully traverse.

To anticipate, a single reference must expressly or inherently disclose each and every element of a claim. *In re Paulsen*, 31 USPQ2d 1671, 1673 (Fed. Cir.

1994); MPEP § 2131 (citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The examiner has the burden of identifying where each and every element of the claimed invention is disclosed in the reference. *Ex Parte Levy*, 17 U.S.P.Q.2d 1461, 1462 (citing *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). Furthermore, “the examiner must provide a basis in fact and/or technical reasoning to support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex Parte Levy*, 17 USPQ2d at 1464 (emphasis in original); MPEP § 2112 (discussing *Ex Parte Levy*). “The fact that a certain result or characteristic may occur or be present is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).” MPEP § 2112.

Hutchings discloses a composition of “sodium chlorite, an initiator and water having a viscosity or rheology suitable for suspendably maintaining chlorine dioxide within the composition.” Column 3, lines 20-23. Suitable initiators are thickeners, dyes, materials having an aldehyde or an acetal substituent group (*e.g.*, cinnamic aldehyde), perfumes, and reducing sugars. Column 4, line 42 to Column 6, line 41. Hutchings teaches the use of initiators in combination, *e.g.*, “the initiator (or initiators) may be used in excess. . . .” Column 3, lines 26-27. Furthermore, other materials having the attributes of initiators may be included in the composition, “even though not providing initiation of chlorine dioxide formation.” Column 3, lines 28-31.

For Hutchings to anticipate the claimed invention, each and every element of the claimed invention must necessarily flow from its disclosure. MPEP § 2112. Clearly, based on the above citations, each and every element of the claimed invention does not necessarily flow from this reference.

For example, Hutchings does not teach the composition of Claim 8 having cinnamic aldehyde that is free of added antioxidants. In contrast, Hutchings discloses compositions containing cinnamic aldehyde and an added antioxidant. Included in the definition of initiator material are compounds having an aldehyde group, which

includes cinnamic aldehyde, a known antioxidant. Column 4, line 66. Therefore, other materials having an aldehyde group that are also antioxidants are within the ambit of the definition of initiator. Because Hutchings discloses compositions having multiple initiators (Column 3, lines 26-27), Hutchings therefore discloses compositions having cinnamic aldehyde plus an added initiator that is also an antioxidant. Thus, the claimed composition having cinnamic aldehyde that is free of an added antioxidant does not necessarily flow from Hutchings. Hutchings does not expressly or inherently contemplate the claimed composition and therefore does not anticipate under 102(b).

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of Hutchings be withdrawn.

2. Burrell et al. U.S. Patent No. 5,304,861,514

Claims 8 and 10 stand rejected under 102(b) as being anticipated by Burrell et al. The Examiner contends the claimed composition is anticipated in Burrell et al. at Column 7, lines 1-4. Applicant's respectfully traverse.

As stated above, to anticipate, the claimed invention must necessarily flow from the teachings of a prior art reference. MPEP § 2112. The fact that a certain characteristic may be present is not sufficient to establish the inherency. *Id.*

Burrell et al. disclose compositions to prevent food spoilage caused by bacteria, such as, *Pseudomonas cepacia* and *Enterobacter cloacae*. Column 1, lines 7-15; Column 5, line 20. Effective ingredients include cinnamic aldehyde. Column 5, line 49. However, Burrell et al. disclose compositions comprising cinnamic aldehyde and the added antioxidants, eugenol (I, II, III) and hexyl-cinnamic aldehyde (2, 3, 5). Column 6, lines 10, 17, 43, 47. Thus, the claimed invention does not necessarily flow from the teachings of Burrell et al. Furthermore, Burrell et al. do not contemplate a composition comprising cinnamic aldehyde that does not contain an added antioxidant.

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of Burrell et al. be withdrawn.

3. *Howell et al.* U.S. Patent No. 5,102,675

Claims 7, 12-14, 21, and 24 stand rejected under 102(b) as being anticipated by *Howell et al.* The Examiner contends the composition of *Howell et al.* comprises coniferyl aldehyde coupled to wood chips, a suitable termite bait.

Howell et al. disclose a method of treating oak wood chips for use in aging wine. The method removes undesirable flavors from the oak and enhances desirable flavors, such as, coniferaldehyde. Column 5, lines 11-37. Thus, the method of *Howell et al.* exploits the coniferaldehyde naturally found in oak wood.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is coupled to a solid support. Coupling to a solid support is disclosed in the reissue application at Column 4, lines 41-64. Methods for coupling utilize a linker, such as a polysaccharide binding domain and a cellulose binding domain. *Howell et al.* do not expressly or inherently disclose the use of linkers as instantly claimed. *Howell et al.* soak oak chips in a solution of water and ethanol and toast the chips to increase the amount of coniferaldehyde available in the wood to flavor wine. *Howell et al.* do not contemplate the use of linkers to couple coniferyl aldehyde to a solid support and therefore do not anticipate the claimed invention.

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of *Howell et al.* be withdrawn.

4. *Ando et al.* JP-3268901

Claims 7, 12-14, 16, 21, and 24 stand rejected under 102(b) as being anticipated by *Ando et al.* The Examiner contends the paint composition of *Ando et al.* comprising cinnamic aldehyde anticipates the claimed invention.

Ando et al. disclose a paint comprising cinnamic aldehyde for coating the surface of a wooden flooring.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is coupled to a solid support.

Coupling to a solid support is disclosed in the reissue application at Column 4, lines 41-64. Methods for coupling utilize a linker, such as a polysaccharide binding domain and a cellulose binding domain. Ando *et al.* do not expressly or inherently disclose at least this element of the claimed invention. Ando *et al.* applies the disclosed paint by coating the surface of a wooden flooring. Ando *et al.* do not contemplate the use of linkers to couple coniferyl aldehyde to a solid support and therefore do not anticipate the claimed invention.

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of Ando *et al.* be withdrawn.

5. Tanaka JP-4176460

Claims 7, 12-14, 16, 21, and 24 stand rejected under 102(b) as being anticipated by Tanaka. The Examiner contends Tanaka discloses the application of cinnamaldehyde by an adhesive to a cellulosic material, which anticipates the claimed invention. Applicants respectfully traverse the rejection.

Applicants respectfully point out that Tanaka does not disclose applying cinnamaldehyde to a cellulosic material using an adhesive. In the first paragraph of the Abstract, Tanaka states cinnamaldehyde is sprayed onto a fabric, cloth, or paper for use as a nappy. In the second paragraph of the Abstract, Tanaka states chitin or chitosan is dissolved in an organic acid with an adhesive which is applied to a fabric, cloth or film.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is coupled to a solid support. Coupling to a solid support is disclosed in the reissue application at Column 4, lines 41-64. Methods for coupling utilize a linker, such as a polysaccharide binding domain and a cellulose binding domain. Tanaka does not expressly or inherently disclose at least this element of the claimed invention. Tanaka sprays cinnamaldehyde onto a fabric, cloth or paper. Tanaka does not contemplate the use of linkers to couple coniferyl aldehyde to a solid support and therefore do not anticipate the claimed invention.

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of Tanaka be withdrawn.

6. Sugamoto JP-381202

Claims 7, 12-14, 16, 21, and 24 stand rejected under 102(b) as being anticipated by Sugamoto. The Examiner contends the disclosure of spraying cinnamic onto a carpet anticipates the claimed invention. Applicants respectfully traverse the rejection.

Sugamoto discloses at page 5, paragraph 5 a method of making an anti-mite carpet by spraying a carpet during manufacture with an anti-mite composition.

In contrast, Claims 7, 21, and 24 are drawn to a composition comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde, wherein said composition is coupled to a solid support. Coupling to a solid support is defined in the reissue application at Column 4, lines 41-64. Methods for coupling utilize a linker, such as a polysaccharidase binding domain and a cellulose binding domain. Sugamoto does not expressly or inherently disclose the use of linkers. Sugamoto sprays the anti-mite composition onto a carpet during manufacture. Sugamoto does not contemplate the use of linkers to couple coniferyl aldehyde to a solid support and therefore do not anticipate the claimed invention.

7. Sperti *et al* U.S. Patent No. 4,477,361

Claims 8 and 10 are rejected under 35 U.S.C. 102§(b) as being anticipated by Sperti *et al*. The Examiner argues that Sperti *et al* disclose 0.3% cinnamic aldehyde, and inherently if insects were present they would be killed.

Applicant has amended claim 8 to recite the composition is free of antioxidants other than the one or more compounds selected from the group consisting of cinnamic aldehyde or coniferyl aldehyde. As Sperti does not disclose compositions free of antioxidants other than the one or more compounds, Sperti *et al*. do not anticipate the claimed invention.

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of Sperti *et al*. be withdrawn.

8. Narasaki et al. JP-64016706

Claims 1, 4, 5, 8, and 10 are rejected under 35 U.S.C. 102§(b) as being anticipated by Narasaki *et al.* The Examiner contends the disclosure of Narasaki *et al.* of compositions comprising cinnamic aldehyde, a polyprotic acid, and detergent formulations anticipates the claimed invention.

To anticipate, a single reference must expressly or inherently disclose each and every element of a claim and the allegedly inherent characteristics must necessarily flow from the teachings of the applied prior art. MPEP § 2112.

In view of this requirements, Applicants respectfully point out that Narasaki *et al.* do not expressly or inherently teach a compositions comprising one or more compounds selected from the group consisting of coniferyl aldehyde and cinnamic aldehyde that is free of antioxidants other than said compounds. Narasaki *et al.* do not contemplate at least this element of the claimed compositions and the methods of use. Therefore, Narasaki *et al.* do not expressly or inherently teach every element of the claimed invention and cannot anticipate under 102(b).

In view of these remarks, Applicants respectfully request the rejection under 102(b) in view of Narasaki *et al.* be withdrawn.

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CONCLUSION

Applicant respectfully submits that the above amendments and arguments fully resolve each of the Examiner's rejections. Allowance is therefore requested. If the Examiner feels there are additional outstanding issues, the Examiner is invited to call the undersigned attorney at (415) 781-1989.

Respectfully submitted,

DORSEY & WHITNEY LLP

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By: 
Diane J. Mason, Reg. No. 43,777
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Four Embarcadero Center, Suite 3400
San Francisco, California 94111-4187
Telephone: (415) 781-1989
Facsimile: (415) 398-3249